IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

Hiroshi KOJIMA

Application No.: 10/519,796 Examiner: M. MATZEK

Filed: December 29, 2004 Docket No.: 123745

For: ELECTROMAGNETIC SHIELDING SHEET AND METHOD OF FABRICATING THE SAME

BRIEF ON APPEAL

Appeal from Group 1794

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I. REAL PARTY IN INTEREST

The real party in interest for this appeal and the present application is Dai Nippon Printing Co., Ltd., by way of an Assignment recorded in the U.S. Patent and Trademark Office at Reel 016302, Frame 0595.

II. RELATED APPEALS AND INTERFERENCES

There are no prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or that will directly affect or be directly affected by or have a bearing upon, the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1, 3, 4, 6-8 and 11 are on appeal.

Claims 1, 3, 4, and 6-11 are pending.

No claims are allowed.

Claims 1, 3, 4, 6-8 and 11 are rejected.

Claims 9 and 10 are withdrawn from consideration.

Claims 2 and 5 are canceled.

IV. STATUS OF AMENDMENTS

No Amendment After Final Rejection has been filed.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed invention is directed to an electromagnetic shielding sheet disposed in front of a display that is capable of shielding electromagnetic radiation, and capable of reducing reflection of light from a conductive layer to ensure that the visibility of displayed images is satisfactory. Page 4, lines 12-18.

In an embodiment, and with reference to the Figures, the electromagnetic shielding sheet structure (1 - Figs. 2-3B) comprises a transparent base (11 - Figs. 2-3B), a mesh structure (103 - Fig. 1) formed on the base (11 - Figs. 2-3B), and a grounding frame (101 - Fig. 1) surrounding the mesh structure (103 - Fig. 1). Page 8, lines 4-7. The mesh structure (103 - Fig. 1) has intersecting lines (107 - Fig. 2) defining openings or cells (105 - Fig. 2). Page 8, lines 7-9. A conductive structure (109 - Figs. 2-3B) is laminated to one surface of a base (11 - Figs. 2-3B) with an adhesive layer (13 - Figs. 2-3B). Page 8, lines 12-13. The conductive structure (109 - Figs. 2-3B) comprises a mesh structure having lines (107 - Fig. 2). Page 8, lines 13-14. The width of the lines (107 - Fig. 2) is referred to as line width (W - Fig. 2), and the distance between the similar edges of the adjacent lines (107 - Fig. 2) is referred to as pitch (P - Fig. 2). Page 8, lines 14-17.

The conductive structure (109 - Figs. 2-3B) has a metal layer (21 - Figs. 3A and 3B), and a blackened layer (23A - Figs. 3A and 3B) formed by attaching Cu-Co alloy particles to one of the surfaces of the metal layer (21 - Figs. 3A and 3B). Page 8, lines 29-31. A density-intensifying layer (25A - Figs. 3A and 3B) is formed so as to cover the Cu-Co alloy particles. Page 8, lines 31-32. The density-intensifying layer (25A - Figs. 3A and 3B) intensifies the optical density (black density) of the blackened layer (23A - Figs. 3A and 3B). Page 8, lines 32-34. The density-intensifying layer (25A - Figs. 3A and 3B) is a layer of copper and/or nickel and/or zinc oxide or a chromated layer. Page 8, line 35 - page 9, line 1.

In embodiments, a blackened layer (23B - Figs. 3A and 3B) and a density-intensifying layer (25B - Figs. 3A and 3B) may be formed on the other surface, not coated with the blackened layer (23A - Figs. 3A and 3B), of the metal layer (21 - Figs. 3A and 3B). Page 9, lines 2-4. When the blackened layers (23A and 23B - Figs. 3A and 3B) are formed on both the surfaces of the metal layer (21 - Figs. 3A and 3B), respectively, the density-intensifying layers (25A and 25B - Figs. 3A and 3B) may be formed on the surfaces of the blackened layers (23A and 23B - Figs. 3A and 3B), respectively. Page 9, lines 4-8.

In embodiments, the mean particle size of the Cu-Co alloy particles is in a range of 0.1 to 1 μm. Page 14, lines 9-10. The openings in the mesh metal layer may be filled with a transparent resin so that the surface of the transparent resin filling the openings is flush with the surface of the metal layer. Page 5, lines 23-25. The thickness of the density intensifying layers may be in the range of about 0.001 to about 1 μm. Page 15, lines 7-9.

Electromagnetic noise is a problem found in electronic devices. Electromagnetic noise is classified roughly into conducted noise and radiated noise. Methods of preventing problems due to conducted noise use a noise filter to filter and reduce the conducted noise. Methods of preventing problems due to radiated noise use a metal case to shield a space electromagnetically, placing a metal sheet between wiring boards or coating the wires of cables with a metal foil. Although the above methods are effective in electromagnetically shielding circuits and power blocks, these methods are unsuitable for shielding electromagnetic radiation generated by the screens of displays, such as CRTs and PDPs, because these methods use opaque means that hinder viewing the display. Page 1, lines 21-31. Thus, there remains a need for a need for an electromagnetic shielding sheet that can reduce electromagnetic noise and radiation and that does not hinder the display quality upon viewing.

To address the above problems, the claimed electromagnetic shielding sheet includes a blackened layer formed of Cu-Co alloy (23A and 23B - Figs. 3A and 3B) and density-intensifying layers (25A and 25B - Figs. 3A and 3B) formed on the surfaces of the blackened layers (23A and 23B - Figs. 3A and 3B). The blackened layers (23A and 23B - Figs. 3A and 3B) and the density-intensifying layers (25A and 25B - Figs. 3A and 3B) absorb external light that falls on the meshed surface and, thus, they do not reflect the external light that falls on the meshed surface toward the viewer. This prevents the external light from reducing contrast in images, which leads to satisfactory visibility. Page 10, lines 1-7. The density-intensifying layers (25A and 25B - Figs. 3A and 3B) are formed so as to coat the blackened layers (23A and 23B - Figs. 3A and 3B). Page 14, lines 24-26. The density-intensifying layers (25A and 25B - Figs. 3A and 3B) also function to prevent the metal layer (21 - Figs. 3A and 3B) and the blackened layers (23A and 23B - Figs. 3A and 3B) from rusting and to prevent the blackened layers (23A and 23B - Figs. 3A and 3B) from coming off and being deformed.

As a result, the claimed electromagnetic shielding sheet is capable of shielding electromagnetic radiation, and capable of reducing reflection of light from a conductive layer to ensure that the visibility of displayed images is satisfactory. Page 4, lines 15-18. Particularly, the uniformly and densely distributed Cu-Co alloy particles improve the visibility of images, and the blackened layer and the density-intensifying layer prevent the reflection of incident external light, such as sunlight and light emitted by lamps, by the lines 107 to improve contrast in images and to improve the visibility of displayed images. Page 5, lines 7-9 and page 16, lines 11-15.

In particular, the claimed invention is directed to an electromagnetic shielding sheet comprising: a transparent base; a mesh metal layer having openings and formed on one of the surfaces of the base; a blackened layer formed on one of the surfaces of the metal layer; and a density-intensifying layer formed on the blackened layer for intensifying black density of the

blackened layer, wherein the blackened layer is formed of Cu-Co alloy particles adhering to the metal layer, the density-intensifying layer is a chromated layer formed by a chromate treatment and so that the Cu-Co alloy particles are prevented from coming off from the mesh metal layer by the chromated layer. Claim 1.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are presented for review:

1) Claims 1, 4, 6-8 and 11 are rejected as having been obvious under 35 U.S.C. §103(a) over EP 0 998 182 A2 to Ueda et al. ("Ueda") in view of JP 62-107039 to Miyake ("Miyake").

2) Claim 3 is rejected as having been obvious under 35 U.S.C. §103(a) over Ueda in view of Miyake and further in view of U.S. Patent No. 5,158,657 to Kadokura et al ("Kadokura").

VII. ARGUMENT

The Examiner rejects claims 1, 3, 4, 6-8 and 11 under 35 U.S.C. §103(a) over Ueda in view of Miyake, and variously further in view of Kadokura. However, the Examiner has consistently improperly applied the law relating to obviousness. Proper application of the law demonstrates that no ***prima facie*** case of obviousness has been shown, and that the claimed invention would not have been obvious over the applied references.

A. Factual Inquiries to Determine Obviousness/Non-Obviousness

Several basic factual inquiries must be made in order to determine obviousness or non-obviousness of claims of a patent application under 35 U.S.C. §103. These factual inquiries are set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966):

> Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined.

Further, the key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court, quoting In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that "'[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'" KSR, 550 U.S. at ___, 82 USPQ2d at 1396.

The specific factual inquiries set forth in Graham have not been considered or properly applied by the Examiner in formulating the rejections of the subject claims. Particularly, the scope and content of the prior art was not properly determined and demonstrated and applied to the claimed invention.

In the present case, proper consideration of the factual inquiries demonstrates nonobviousness of the claimed invention. The applied references at least do not disclose, or

provide any reason or rationale to have modified the references to include, the claimed features of a blackened layer formed of Cu-Co alloy and a density-intensifying layer formed on one of the surfaces of the metal layer, wherein the density-intensifying layer is a chromated layer formed by a chromate treatment so that the Cu-Co alloy particles are prevented from coming off from the mesh metal layer by the chromated layer.

B. Claims 1, 4, 6-8 and 11 Would Not Have Been Obvious Over Ueda in View of Miyake

Claims 1, 4, 6-8 and 11 are rejected under 35 U.S.C. §103(a) over Ueda in view of Miyake. Ueda is applied as disclosing all of the features of the claimed invention except for the use of a Cu-Co alloy, but Miyake is applied as allegedly disclosing using a Cu-Co alloy. However, any combination of Ueda and Miyake would not have rendered obvious the claimed invention.

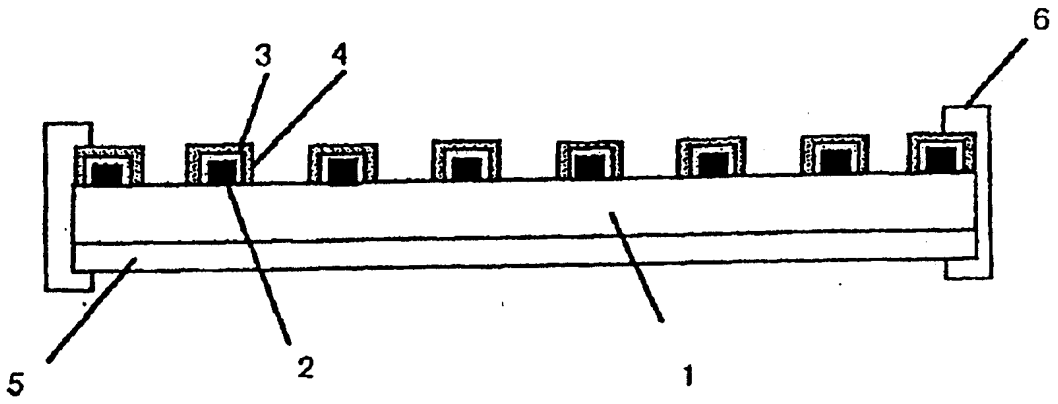
Independent claim 1 recites an electromagnetic shielding sheet comprising: a transparent base; a mesh metal layer having openings and formed on one of the surfaces of the base; a blackened layer formed on one of the surfaces of the metal layer; and a density-intensifying layer formed on the blackened layer for intensifying black density of the blackened layer, wherein the blackened layer is formed of Cu-Co alloy particles adhering to the metal layer, the density-intensifying layer is a chromated layer formed by a chromate treatment and so that the Cu-Co alloy particles are prevented from coming off from the mesh metal layer by the chromated layer. Ueda and Miyake do not disclose, and do not provide any reason or rationale for one of ordinary skill in the art to have modified the references to include, all of the claimed features. Thus, Ueda and Miyake would not have rendered obvious the claimed invention.

1. Ueda and Miyake Would Not Have Rendered Obvious a Density-Intensifying Layer Formed on the Blackened Layer

Ueda is applied as disclosing all the features of the claimed invention, except for the use of a Cu-Co alloy as the blackened layer. In particular, the Office Action points to Ueda at paragraphs [0011], [0018], [0024] and [0032] - [0034] as allegedly disclosing the substrate, the metal mesh layer, and a metallic layer with an uppermost layer that is blackened. The Office Action then asserts that the blackened layer can further be coated using an electroplating process, such as chromate plating. The Office Action then improperly relies on Miyake as alleging that it would have been obvious to use the Cu-Co alloy disclosed in Miyake in place of the copper disclosed in Ueda. However, because the Office Action improperly interprets the Ueda reference, and because the Office Action relies only upon hindsight reconstruction of the claimed invention, and a flawed and illogical motivation to combine the references, the combination is improper and no *prima facie* case of obviousness has been established.

Applicants agree that Ueda generally discloses an electromagnetic shield plate that includes a transparent substrate, a geometric pattern formed on the substrate, and a metallic layer that may have an uppermost portion that is blackened. For example, Figure 1 from Ueda is shown below:

Figure 1

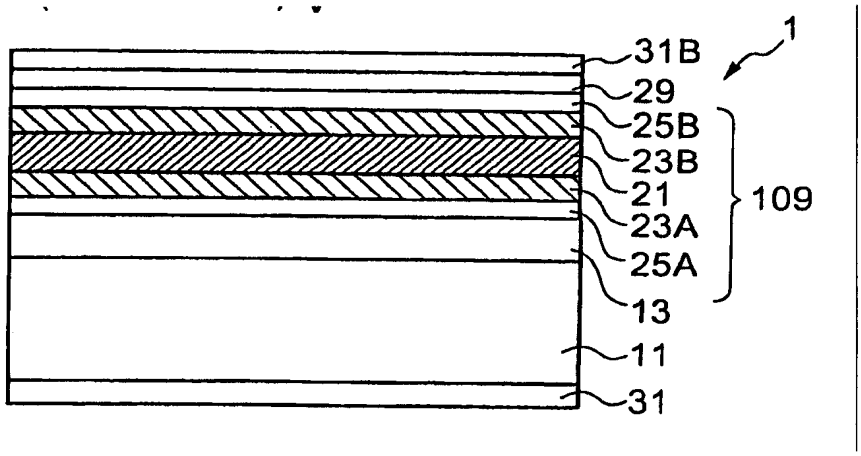


This figure shows the structure of the electromagnetic shield plate according to Ueda. As can be seen from the above figure, Ueda discloses a base (1) having a conductive paste (2) provided thereon with a metal layer (3) disposed on top of the conductive paste. The structure may also include a blackened layer (4) disposed on top of the metal layer. See Ueda, Examples 1 and 3. However, Ueda does not disclose that an additional layer is formed on the blackened layer. In fact, Ueda specifically discloses that the uppermost layer is a black-colored layer. Ueda, paragraph [0033]. Miyake does not address the above discrepancy of Ueda.

Miyake merely discloses a copper alloy for an electromagnetic wave material that comprises lead, cobalt, copper and inevitable impurity. Miyake, claim 1. However, Miyake does not disclose any layered structure and, thus, does not disclose that a density-intensifying layer is formed on a blackened layer as recited in present claim 1. Further, Miyake does not disclose that its copper alloy can or should be blackened. In fact, Miyake discloses that its copper alloy has excellent corrosion resistance.

In contrast, an embodiment of the claimed invention as represented by Fig. 3B is reproduced below:

FIG. 3B



In Fig. 3B an electromagnetic shielding sheet is provided with a conductive structure (109) that has a metal layer (21), and a blackened layer (23A) formed by attaching Cu-Co alloy particles to one of the surfaces of the metal layer (21). A density-intensifying layer (25A) is formed so as to cover the Cu-Co alloy particles. The density-intensifying layer (25A) intensifies the optical density (black density) of the blackened layer (23A). Fig. 3B also shows an optional second blackened layer (23B) that is also formed by attaching Cu-Co alloy particles to a surface of the metal layer (21). A second density-intensifying layer (25B) is formed so as to cover the Cu-Co alloy particles. The second density-intensifying layer (25B) intensifies the optical density (black density) of the second blackened layer (23B).

Ueda does not disclose, and does not provide any reason or rationale for one of ordinary skill in the art to have modified its disclosure to include, a density-intensifying layer as recited in claim 1. That is, Ueda does not disclose or provide any reason or rationale to have formed a density-intensifying layer on the blackened layer for intensifying black density of the blackened layer, where the density-intensifying layer is a chromated layer formed by a chromate treatment and so that the Cu-Co alloy particles are prevented from coming off from the mesh metal layer by the chromated layer.

At most, Ueda discloses an electromagnetic shield plate with a conductive paste disposed on a substrate in a geometrical pattern. A metallic layer, or multiple metallic layers, may then be formed on the conductive paste, and the uppermost layer of the metallic layers may be blackened to suppress the reflection of visible light. Ueda, paragraphs [0032] - [0034]. However, as discussed above, Ueda does not disclose that any layer should be formed on the blackened uppermost layer of its electromagnetic shield.

The Office Action asserts:

> The metallic layer structure may comprise multiple layers and the uppermost is preferably blackened to suppress the reflection of visible light. When covering the grid with a metallic layer structure said layer structure should be further chromate plated. This provides the claimed density-intensifying layer formed on the blackened layer.... Ueda et al. disclose the use of chromate plating to form the outermost layer of the multi-layer metallic layer [0033-34]. Applicant and the applied reference both use chromate treatments to form an outermost layer on top of the metallic layer and as such both processes would arrive at the same final product; the claimed density-intensifying layer formed on the blackened layer for intensifying black density of the blackened layer.

April 9, 2009 Office Action, page 2, paragraph 2.a. However, this is a misinterpretation of Ueda that goes against Ueda's express disclosure that the blackened layer is the uppermost layer and impermissibly stretches the disclosure of Ueda so that the features recited in claim 1, particularly a density-intensifying layer formed on the blackened layer, read on Ueda. Such an interpretation is improper.

Paragraphs [0033]-[0034] of Ueda recite:

> Examples of the metal forming the metallic layer include copper, nickel, etc. The metallic layer may be of a single layer structure, or of a multiple layer structure consisting of two or three or more layers. From the viewpoint of visibility, the uppermost layer is preferably a black colored layer, which can suppress the reflection of visible light. The thickness of the metallic layer is usually about 50 μm or less, and preferably about 20 μm ore less and usually not less than about 0.1 μm.

> When covering the geometric pattern with the metallic layer, plating should be applied for the formation of the metallic layer, for example, after the geometric pattern of the conductive paste has been formed. The plating can be done using electroplating or electroless plating, on or the other of which is selected appropriately in accordance with the conductivity of the conductive paste used. It is possible to plating [sic] using both electroplating and electroless plating. Especially, it is an effective method for making a variation in thickness of metallic layer small that thin metallic layer is further plated using electroplating after covering thin metallic layer on the geometric pattern using electroless plating. When forming the uppermost layer as a black colored layer, black nickel plating, chromate plating, or black ternary alloy plating using tin, nickel and copper, or black ternary alloy plating using tin, nickel and molybdenum, should be applied for the formation of the black colored layer. It is possible to blacking a surface of a metallic layer by sulfuration treatment or oxidation treatment. It is possible to carrying [sic] out such a treatment by well-known methods.

(Emphasis added). Thus, Ueda merely discloses that a metallic layer may cover the geometric pattern formed from a conductive paste, and that the metallic layer may have a single layer structure or a multiple layer structure. Ueda does not provide any reason or rationale to add a density-intensifying layer on its blackened layer at least because Ueda does not disclose any layers, metallic or otherwise, that are to be added to the electromagnetic shielding sheet after the blackened layer of the metallic layer is formed, and because Ueda expressly discloses that the uppermost layer of the multiple-layer-structure metallic layer should be the blackened layer.

Further, the Office Action asserts that the chromate-plated layer of Ueda corresponds to the density-intensifying layer recited in claim 1. However, it is clear from the above disclosure that the chromate plating disclosed in Ueda is used to form one of the multiple metallic layers or the blackened layer itself and does not provide a layer that corresponds to the density-intensifying layer, as recited in claim 1. As is clearly recited in claim 1, the density-intensifying layer is formed on the blackened layer. Ueda does not disclose, or provide any reason or rationale to form an additional chromate plated layer after the

blackened layer is formed, as is apparently asserted by the Office Action. Put differently, although the chromate plated layer of Ueda may be formed on a metallic layer, Ueda does not disclose that the chromate plated layer is formed on a blackened layer, nor does Ueda provide any reason or rationale for one of ordinary skill in the art to have applied a chromate plated layer on a blackened layer. Thus, Ueda merely discloses that the "uppermost layer" may be a blackened layer and that a chromate plating method may at most be used to form the blackened "uppermost layer" itself. However, Ueda does not disclose, or provide any reason or rationale, to form an additional layer on the blackened "uppermost layer."

Accordingly, Ueda would not have rendered obvious the claimed invention.

Miyake fails to overcome the deficiencies of Ueda, and any combination of Ueda and Miyake would not have rendered obvious all of the features of the claims.

The Examiner cites Miyake as disclosing the use of a Cu-Co alloy as an electromagnetic wave shielding material. See Miyake, claim 1. However, Miyake does not overcome the deficiencies of Ueda.

As discussed above, Miyake does not disclose a blackened layer, or any layer structure for an electromagnetic shielding sheet. Thus, Miyake does not disclose, or provide any reason or rationale for one of ordinary skill in the art to have formed, a density-intensifying layer on a blackened layer, as recited in claim 1.

For at least these reasons, claim 1 and its dependent claims would not have been obvious over Ueda, alone or in combination with Miyake.

2. Ueda and Miyake Would Not Have Rendered Obvious a Blackened Layer Formed of Cu-Co Alloy

Further, claim 1 recites that the blackened layer is formed of Cu-Co alloy particles. Thus, the electromagnetic shield sheet of claim 1 requires a blackened layer formed of Cu-Co alloy formed on one of the surfaces of a mesh metal layer. Ueda and Miyake would not have

rendered obvious this feature of claim 1 at least because the Office Action applies an erroneous rationale for the alleged combination that ignores the expressly recited features of present claim 1 and the disclosure of the applied references.

As stated above, the Office Action asserts that Ueda discloses the various features of claim 1, except that the blackened layer may be formed of Cu-Co alloy. Ueda discloses that when forming the uppermost layer as a black colored layer, black nickel plating, chromate plating, or black ternary alloy plating using tin, nickel and copper, or black ternary alloy plating using tin, nickel and molybdenum should be applied. Ueda further discloses that blackening a surface of a metallic layer, such as an alloy, may be done by sulfuration treatment or oxidation treatment. Ueda, paragraph [0034]. However, as acknowledged on page 3 of the Office Action, Ueda does not disclose use of a Cu-Co alloy in its electromagnetic shield plate. Therefore, Ueda does not disclose, or provide any reason or rationale for one of ordinary skill in the art to have known, that Cu-Co alloy can or should be formed into a blackened layer. To address the discrepancy of Ueda, the Office Action applies the disclosure of Miyake.

The Office Action asserts that Miyake discloses the use of Cu-Co alloy in an electromagnetic wave shielding material as a replacement for copper. The Office Action then erroneously asserts that the copper layer of Ueda may be replaced with the Cu-Co alloy of Miyake and that this substitution would allegedly result in a blackened layer formed of Cu-CO alloy. The Office Action provides the following rationale for the combination:

> Ueda et al. and Miyake are from the same field of endeavor (i.e., electromagnetic shielding materials.
>
> It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have replaced the copper layer of Ueda et al. with the with the [sic] alloy composition of Miyake. The skilled artisan would have been motivated by the desire to create an article that has superior corrosion resistance and

> high conductivity on a metal foil for an electromagnetic shield as set forth in Miyake.

April 9, 2009 Office Action, page 3, paragraphs 2.c-2.d. However, the above rationale does not take into consideration the functionality of the blackening of Ueda and the Cu-Co alloy of Miyake. The Office Action merely asserts an alleged benefit of the Miyake alloy and jumps to the conclusion that not only will this benefit be realized in the Ueda electromagnetic shield plate, but that the alloy can be blackened via the processes disclosed in Ueda. Merely stating a benefit of one reference does not mean that it can be incorporated into another. For example, a jet engine provides better propulsion than a car engine, but that does not mean that it would have been obvious to put a jet engine into an automobile. Here the Office Action states that the Cu-Co alloy of Miyake provides superior corrosion resistance and high conductivity, but it does not provide any reason or rationale for one of ordinary skill in the art to have been apprised that the Cu-Co alloy of Miyake can or should be blackened, or that the blackened Cu-Co would still possess the superior corrosion resistance and high conductivity asserted by the Office Action. Thus, because the Office Action failed to clearly articulate a reason why the Cu-Co alloy of Miyake can or should be used as a blackened layer, a *prima facie* case of obviousness has not been established.

Miyake merely discloses a Pb-Cu-Co alloy that may be used in an electromagnetic wave material, and that if specific amounts of Pb, Cu and Co are used, the alloy results in an electromagnetic wave material with improved conductivity and corrosion resistance when compared to tough pitch copper, deoxidized phosphoric copper and oxygen free copper. In general, the conductivity of a metal will vary according to the response of the free electrons within the metal to an electromagnetic wave. Accordingly, when the conductivity of a metal is high, its reflectivity to light (electromagnetic wave) is high and its blackness is low (metal gloss is high). However, when the conductivity of a metal is low, the response of the free

electrons within the metal to the electromagnetic wave is low, which means that its reflectivity to the light (electromagnetic wave) is low and its blackness is high. Therefore, the Pb-Cu-Co alloy of Miyake cannot be both high in conductivity and be blackened, and, because Miyake is directed to a layer with improved conductivity, its Pb-Cu-Co layer should not be blackened. Accordingly, Miyake does not disclose, or provide any reason or rationale for one of ordinary skill in the art to have been aware, that its Cu-Co alloy can or should be blackened.

In contrast, Ueda discloses that to further enhance the shielding performance, the geometric pattern formed from the conductive paste may be covered with a metallic layer such as copper. Ueda, paragraphs [0032] and [0033]. Thus, the copper of Ueda is formed on a conductive paste and, if one were to replace the copper of Ueda with the Cu-Co alloy of Miyake, one would merely achieve a Cu-Co alloy on a conductive paste. Rather, present claim 1 recites that the blackened layer that is formed of a Cu-Co alloy is formed on one of the surfaces of the metal layer. Accordingly, replacing the copper of Ueda with the Cu-Co alloy of Miyake, as asserted in the Office Action, would not yield the blackened layer as recited in claim 1.

Further, Ueda discloses that specific methods and materials should be used to form a blackened layer. As discussed above, Ueda discloses black nickel plating, chromate plating, or black ternary alloy plating using tin, nickel and copper, or black ternary alloy plating using tin, nickel and molybdenum should be applied. Ueda further discloses that blacking a surface of a metallic layer, such as an alloy, may be done by sulfuration treatment or oxidation treatment. However, the Cu-Co alloy of Miyake allegedly has improved corrosion resistance and, thus, one of ordinary skill in the art would not have expected the Cu-Co alloy to have effectively blackened by a sulfuration or oxidation treatment, as disclosed in Ueda. Accordingly, because Miyake is silent as to the blackening of its Cu-Co alloy, and because it

would not have been obvious to one of ordinary skill in the art that blackening processes of Ueda would achieve a blackened Cu-Co layer, there is no reason or rationale provided that would have led one of ordinary skill in the art to the blackened Cu-Co layer formed on a metal layer, as recited in claim 1.

Thus, it is respectfully asserted that the only disclosure that states that a Cu-Co alloy can be blackened is Applicant's own specification. However, the use of Applicant's specification against Applicant is per se impermissible hindsight reasoning. Therefore, because the Office Action and the applied references fail to provide any reason or rationale for one of ordinary skill in the art to have expected that the Cu-Co alloy can or should be blackened, no *prima facie* case of obviousness has been established.

Thus, Ueda and Miyake, individually or in combination, would not have rendered obvious a blackened layer, formed of Cu-Co alloy, formed on one surface of the metal layer.

For at least these reasons, claim 1 and its dependent claims would not have been obvious over Ueda, alone or in combination with Miyake.

3. Conclusion

Accordingly, Ueda and Miyake, either alone or in combination, would not have rendered obvious the claimed invention. The rejection of claim 1 and its dependent claims is in error and must be reversed.

C. Claim 3 Would Not Have Been Obvious Over Ueda, Miyake and Kadokura

Claim 3 is rejected under 35 U.S.C. §103(a) as having been obvious over Ueda in view of Miyake, and further in view of Kadokura. Because this rejection is premised on the same illogical basis and improper combination of references, described above, the rejection should be reversed.

Claim 3 depends from claim 1, discussed above. As described above, Ueda and Miyake would not have rendered obvious all of the features of the instant independent claim. Kadokura does not overcome the deficiencies of Ueda and Miyake.

As described above, Ueda and Miyake would not have rendered obvious forming a density-intensifying layer on the blackened layer for intensifying black density of the blackened layer, where the density-intensifying layer is a chromated layer formed by a chromate treatment and so that the Cu-Co alloy particles are prevented from coming off from the mesh metal layer by the chromated layer, as claimed. Ueda merely discloses an electromagnetic shield plate with a conductive paste disposed on a substrate in a geometrical pattern. A metallic layer, or multiple metallic layers, may then be formed on the conductive paste, and the uppermost layer of the metallic layers may be blackened to suppress the reflection of visible light. Ueda also does not provide any reason or rationale for one of ordinary skill in the art to have modified its structure to have included a density-intensifying layer formed on a blackened layer, at least because Ueda discloses that the blackened layer is the uppermost layer of its structure.

Miyake does not describe or relate to the structure of an electromagnetic shield sheet at all and, thus, does not address the discrepancies of Ueda, as to this feature of claim 1. Specifically, Miyake does not disclose, and would not have rendered obvious, a blackened layer and, thus, Miyake would not have rendered obvious that a density-intensifying layer can or should be formed over a blackened layer, as recited in claim 1.

Furthermore, Ueda and Miyake would not have rendered obvious that a Cu-Co alloy can or should be blackened. Ueda does not disclose a Cu-Co alloy and, thus, does not disclose that a Cu-Co alloy can or should be blackened. Also, Ueda discloses specific methods and materials that should be used to form a blackened layer, and does not provide any reason or rationale for one of ordinary skill in the art to have been aware that a Cu-Co

alloy can or should be blackened, as recited in claim 1. Miyake merely discloses that a Cu-Co alloy can be used in place of various copper alloys, but Miyake does not disclose that the Cu-Co alloy can or should be blackened, or that its alleged improved properties would be maintained if the Cu-Co alloy were blackened.

The Examiner cites Kadokura as disclosing a conductive powder comprising Co and Cu with particle sizes preferably ranging from 0.05 to 1 micron. However, regardless of this alleged disclosure, Kadokura does not overcome the deficiencies of Ueda and Miyake. Kadokura does not disclose, and would not have rendered obvious forming a density-intensifying layer on a blackened layer. Nor would Kadokura have rendered obvious that Cu-Co alloys can or should be blackened. Accordingly, any combination of Ueda, Miyake and Kadokura continues to lack essential limitations of the claimed invention.

For at least these reasons, claim 3 would not have been obvious over Ueda, Miyake, and Kadokura. The rejection should thus be reversed.

VIII. CONCLUSION

For all of the reasons discussed above, it is respectfully submitted that the rejections are in error and that claims 1, 3, 4, 6-8 and 11 are in condition for allowance. For all of the above reasons, Appellants respectfully request this Honorable Board to reverse the rejections of claims 1, 3, 4, 6-8 and 11.

Respectfully submitted,

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APPENDIX A - CLAIMS APPENDIX

CLAIMS INVOLVED IN THE APPEAL:

1. An electromagnetic shielding sheet comprising:

a transparent base;

a mesh metal layer having openings and formed on one of the surfaces of the base;

a blackened layer formed on one of the surfaces of the metal layer; and

a density-intensifying layer formed on the blackened layer for intensifying black density of the blackened layer,

wherein the blackened layer is formed of Cu-Co alloy particles adhering to the metal layer, the density-intensifying layer is a chromated layer formed by a chromate treatment and so that the Cu-Co alloy particles are prevented from coming off from the mesh metal layer by the chromated layer.

3. The electromagnetic shielding sheet according to claim 1, wherein the Cu-Co alloy particles have a mean particle size in the range of 0.1 to 1 μm.

4. The electromagnetic shielding sheet according to claim 1, wherein the Cu-Co alloy particles are formed by a cathodic electrodeposition process.

6. The electromagnetic shielding sheet according to claim 1, wherein the openings in the mesh metal layer are filled up with a transparent resin such that the surface of the transparent resin filling up the openings is flush with the surface of the metal layer.

7. The electromagnetic shielding sheet according to claim 6, wherein the transparent resin filling up the openings in the mesh metal layer contains a color tone correcting light-absorbing agent capable of absorbing visible light having wavelengths between 570 nm and 605 nm and/or a near-infrared absorbing agent capable of absorbing infrared radiation having wavelengths between 800 nm and 1100 nm.

8. The electromagnetic shielding sheet according to claim 1 further comprising:

a layer containing a color tone correcting light-absorbing agent capable of absorbing visible light having wavelengths between 570 nm and 605 nm and/or a near-infrared absorbing agent capable of absorbing infrared radiation having wavelengths between 800 nm and 1100 nm formed on the surface of either the base or the density-intensifying layer.

11. The electromagnetic shielding sheet according to claim 1, wherein the density-intensifying layer has a thickness from 0.001 to 0.1 μm.

APPENDIX B - EVIDENCE APPENDIX

NONE

APPENDIX C - RELATED PROCEEDINGS APPENDIX

NONE